

Melt Spun Thermoplastic Polyurethanes Useful as Textile Fibers

Abstract

Melt spun thermoplastic polyurethane polymers useful as textile fibers and having good tenacity and recovery and substantially no gelation are disclosed. The polymers are prepared by a three-step polymerization process including: preparation of "hard" segment oligomer, preparation of "soft" segment oligomer and final reaction of "hard" segment with "soft" segment in a twin-screw reaction extruder to obtain a final polyurethane product having relatively uniform distances between the "hard" segments. The "soft" segment oligomer comprises blocks of polymeric glycol (poly) urethanes end capped with isocyanate groups. The "hard" segment oligomer comprises blocks of low molecular weight C₂-C₆ glycol (poly) urethanes.